What is claimed is:

- A method for testing PCB or MCM (DUT), by checking energy diffusion through boards tracks, said method comprising the steps of:
 - A. Applying heat energy at entrance ports of the PCB/MCM.
 - Measuring in time domain the rate of energy diffusion along the tracks of the board at the terminating ports.
 - Comparing said measurements with pre-memorized values of a group of patterns that represent respective golden board results.
 - Analyzing defects automatically on the basis of learned defect test patterns.
- The method of claim 1 wherein the measurement is conducted in different frequencies bands.
- 3. The method of claim 1 wherein the DUT is before assembly.
- 4. The method of claim 1 wherein the DUT is after assembly.
- The method of claim 1 wherein the measurements are consecutive, heating a single port at a time.
- The method of claim 1 wherein the measurements are conducted at more than one port simultaneously.
- The method of claim 1 wherein analysis process enable to identify the defect type according to the respective pattern.
- The method of claim 1 wherein the heat is applied simultaneously at different entrance ports.
- The method of claim 1 wherein the heating process duration is determined in accordance with the heating source type and DUT material.

- The method of claim 1 wherein the golden board is a pre analyzed perfect PCB/MCM.
- 11. The method of claim 1 wherein the golden board is a simulated PCB/MCM.
- 12. A system for testing PCB or MCM (DUT), by checking energy diffusion through boards tracks, said method comprising the steps of:
 - Controlled heat energy source for applying heat at certain ports of the PCB/MCM (entry ports).
 - B. Thermal Imaging means for measuring in time domain the rate of energy diffusion along the tracks of the board at terminating ports.
 - C. Processing means for comparing said measurements with prememorized values of a group of patterns that represent respective golden board results and analyzing defects automatically on the basis of learned defect test patterns.
- 13. The system of claim 12 further including spectral image means wherein the measurement is conducted in different frequencies bands.
- 14. The system of claim 12 wherein the DUT is before assembly.
- 15. The system of claim 12 wherein the DUT is after assembly.
- 16. The system of claim 12 wherein the measurements are consecutive, heating a single port at a time.
- 17. The system of claim 12 wherein the measurements are conducted at more than one port simultaneously.
- 18. The system of claim 12 wherein the measurement include thermal map.
- 19. The system of claim 12 wherein analysis process enable to identify the defect type according to its respective pattern.

- 20. The system of claim 12 wherein the heat is applied simultaneously at different entrance ports.
- 21. The system of claim 12 wherein the heating process duration is determined in accordance with the heating source type and DUT material.
- The system of claim 12 wherein the golden board is a pre analyzed perfect PCB/MCM.
- 23. The system of claim 12 wherein the golden board is a simulated PCB/MCM.